SEA Simple Exercise

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Exercise

1. Scoping (and Screening):
   a. Define Important Strategic Issues (top 5)
   b. Define strategic objectives (to cope with those issues)
   c. Define strategic alternatives to reach those objectives
2. Impact Analysis:
   a. Define geographic boundary of the GTE plan (e.g. Wayang windu)
   b. Define Baseline: Positioning in terms of Strategic Plan
   c. Compare alternatives
   d. Define Mitigation measures and alternative possibilities
   e. Defining Risks towards Sustainable Development (might come earlier??)
3. Recommendations

Literatures and data/information:

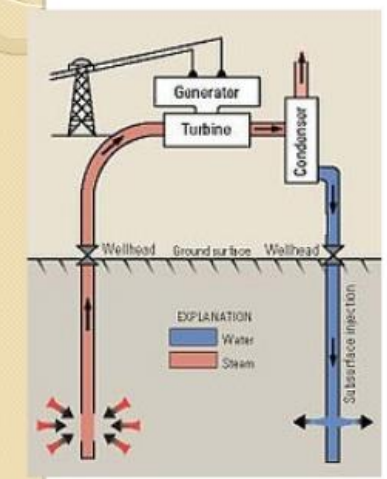
1. Articles and reports on GTE plant
2. Spatial plan Provincial/District level
3. Related Laws and regulations

INTRODUCTION

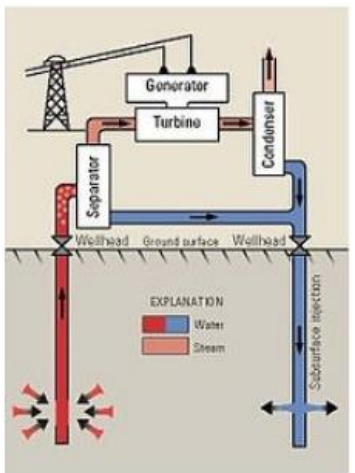
- **Geothermal energy** is thermal energy generated and stored in the Earth. Thermal energy is the energy that determines the temerature of matter. Earth's geothermal energy originates from the original formation of the planet (20%) and from radioactive decay of minerals (80%).

- A **geothermal power plant** uses its geothermal activity to generate power. This type of natural energy production is extremely environmentally friendly and used in many geothermal hot spots around the globe.

DRY STEAM PLANT



FLASH STEAM



Some Basics Understanding on GTE

Geothermal Power station types

- **Dry steam power plants**
  Dry steam plants are the simplest and oldest design. They directly use geothermal steam of 150°C or greater to turn turbines.

- **Flash steam power plants**
  Flash steam plants pull deep, high-pressure hot water into lower-pressure tanks and use the resulting flashed steam to drive turbines. They require fluid temperatures of at least 180°C, usually more. This is the most common type of plant in operation today.

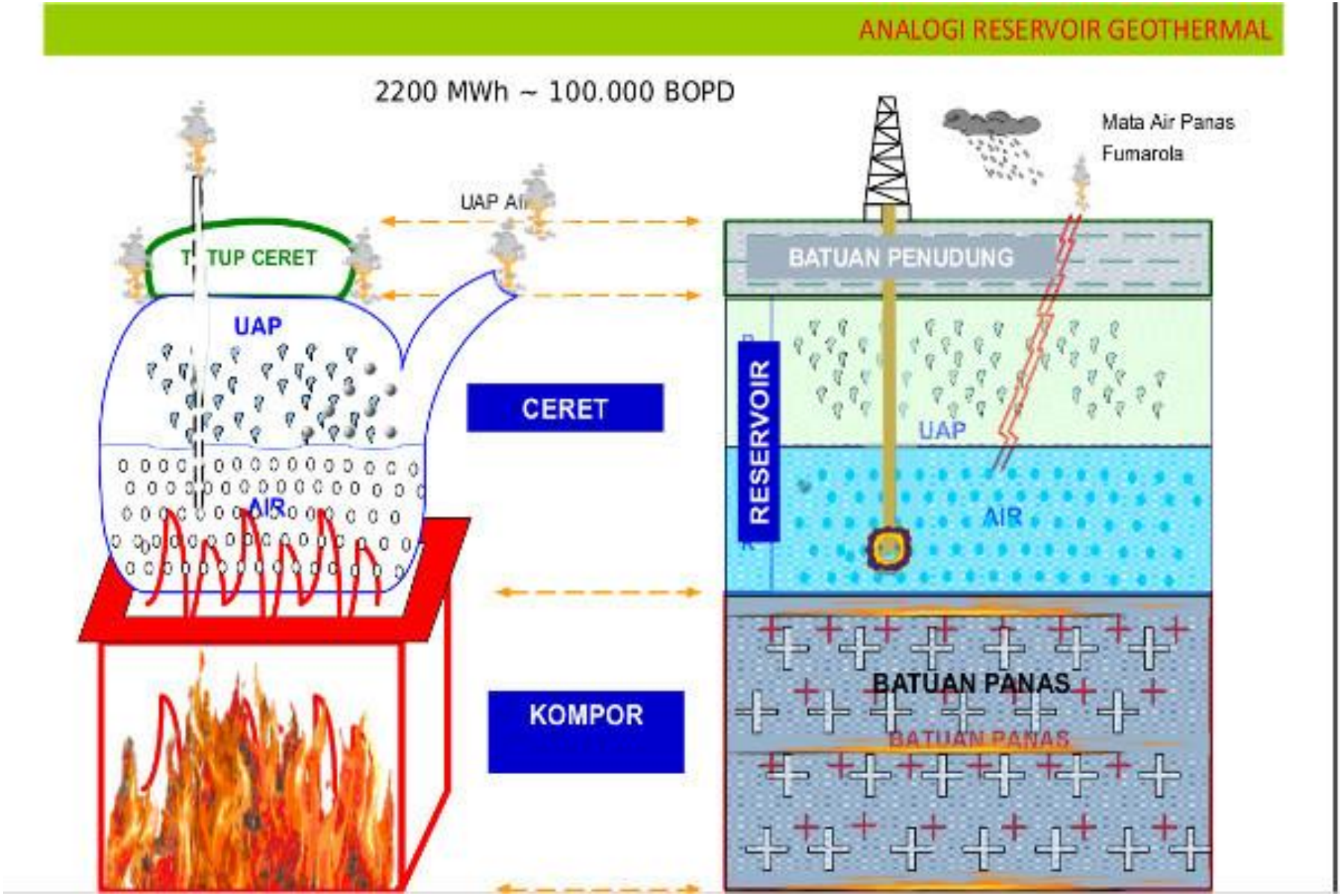
Advantages of Geothermal Plant

- **SIGNIFICANT COST SAVING** : GEOTHERMAL ENERGY GENERALLY INVOLVES LOW RUNNING COSTS SINCE IT SAVES 80% COSTS OVER FOSSIL FUELS AND NO FUEL IS USED TO GENERATE THE POWER.

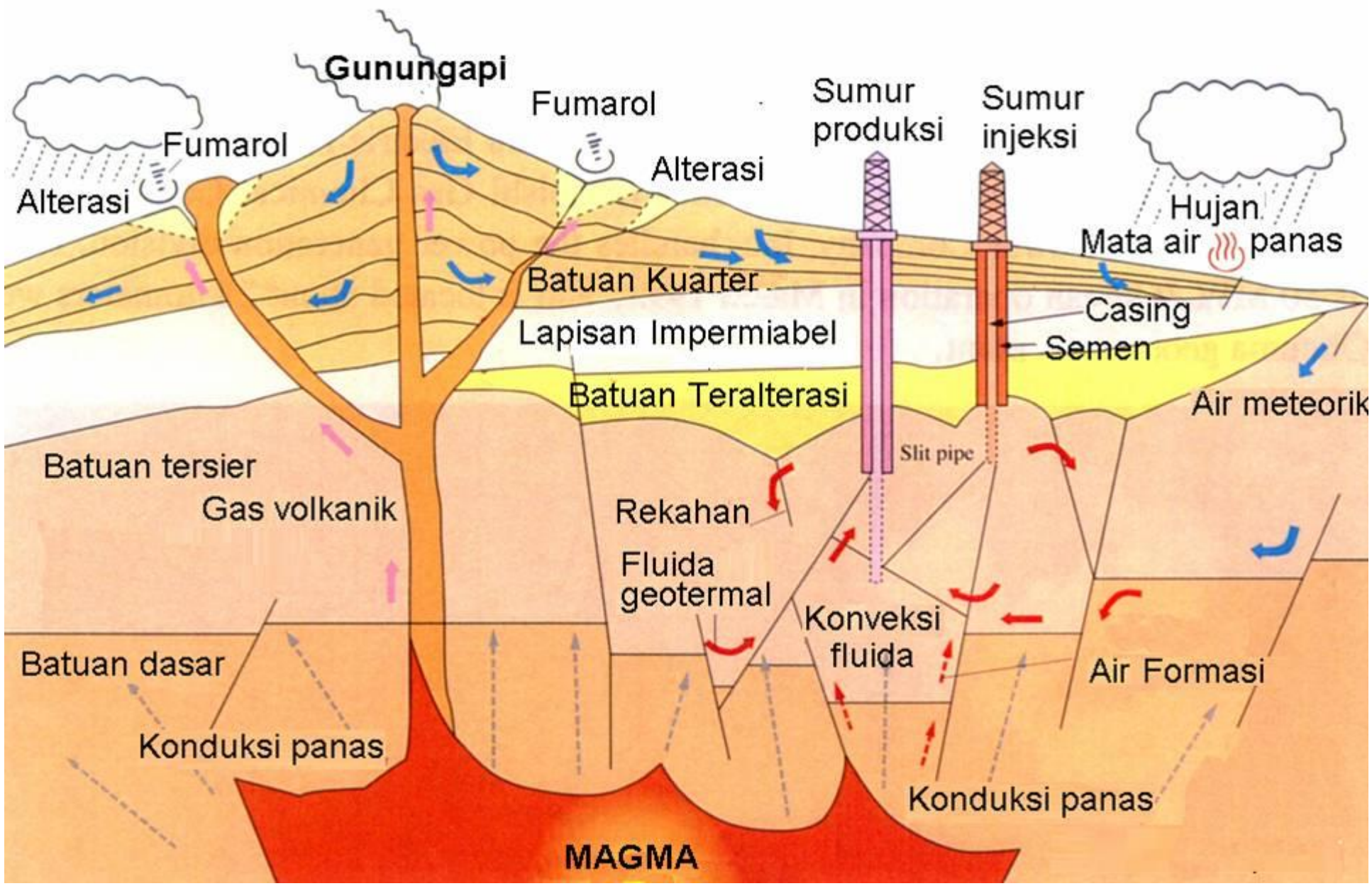
- **REDUCE RELIANCE ON FOSSIL FUELS** : DEPENDENCE ON FOSSIL FUELS DECREASES WITH THE INCREASE IN THE USE OF GEOTHERMAL ENERGY. WITH THE SKY-ROCKETING PRICES OF OIL, MANY COUNTRIES ARE PUSHING COMPANIES TO ADOPT THESE CLEAN SOURCES OF ENERGY.

- **ENVIRONMENTAL BENEFITS** : BEING THE RENEWABLE SOURCE OF ENERGY, GEOTHERMAL ENERGY HAS HELPED IN REDUCING GLOBAL WARMING AND POLLUTION. MOREOVER, GEOTHERMAL SYSTEMS DOES NOT CREATE ANY POLLUTION AS IT RELEASES SOME GASES FROM DEEP WITHIN THE EARTH WHICH ARE NOT VERY HARMFUL TO THE ENVIRONMENT.

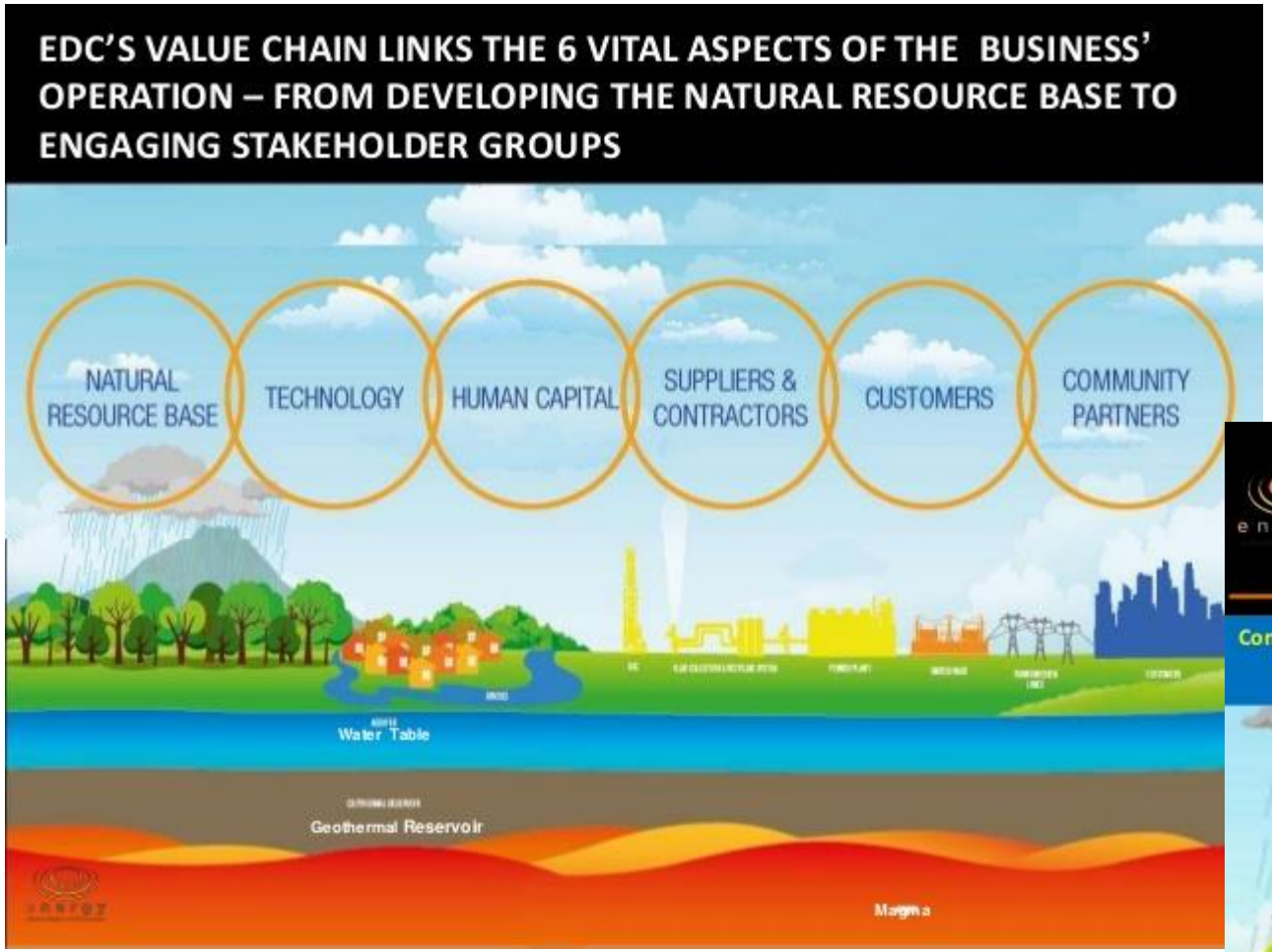
A simple illustration of GTE power plant (1)

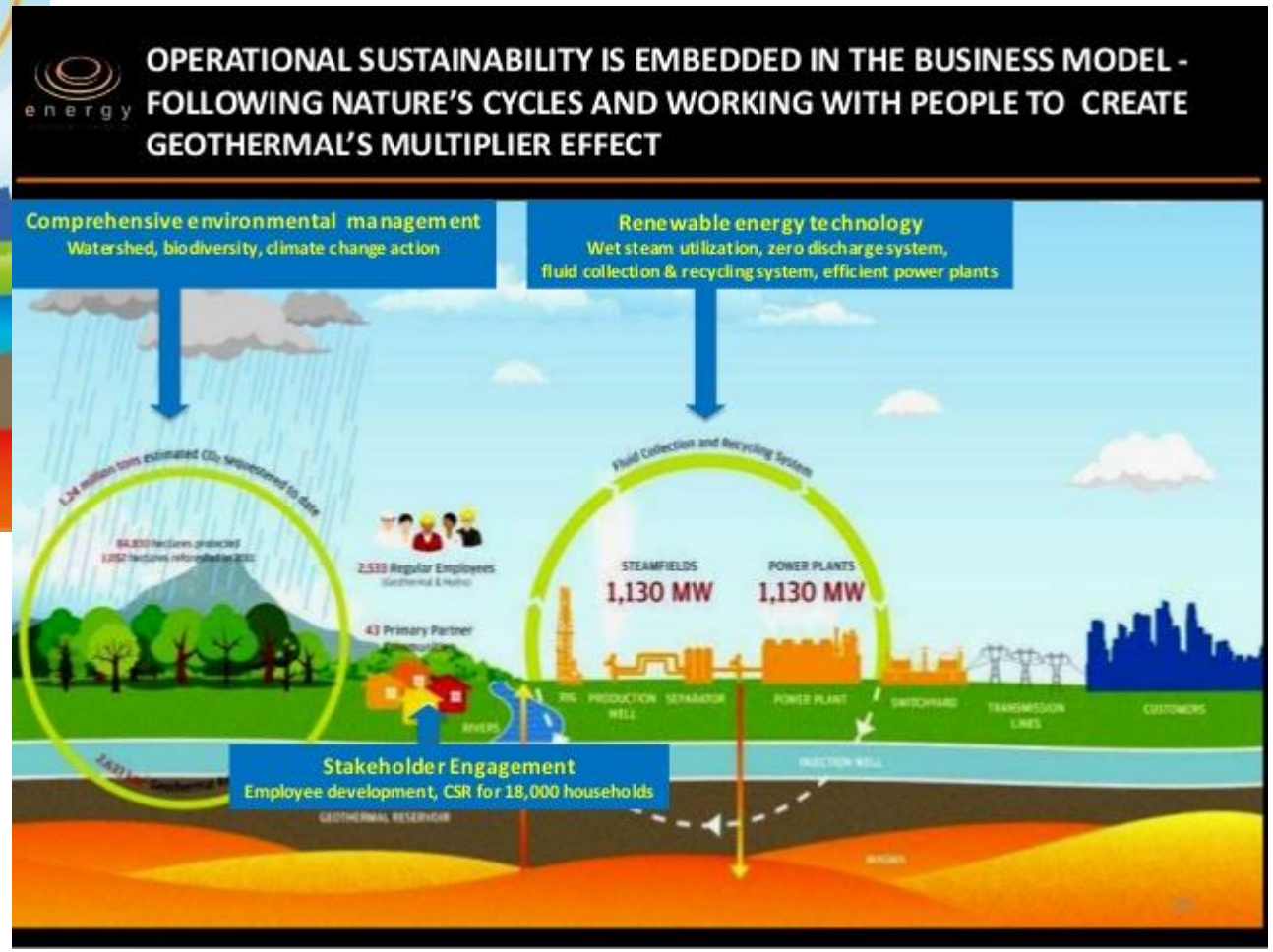


A simple illustration of GTE power plant (2)

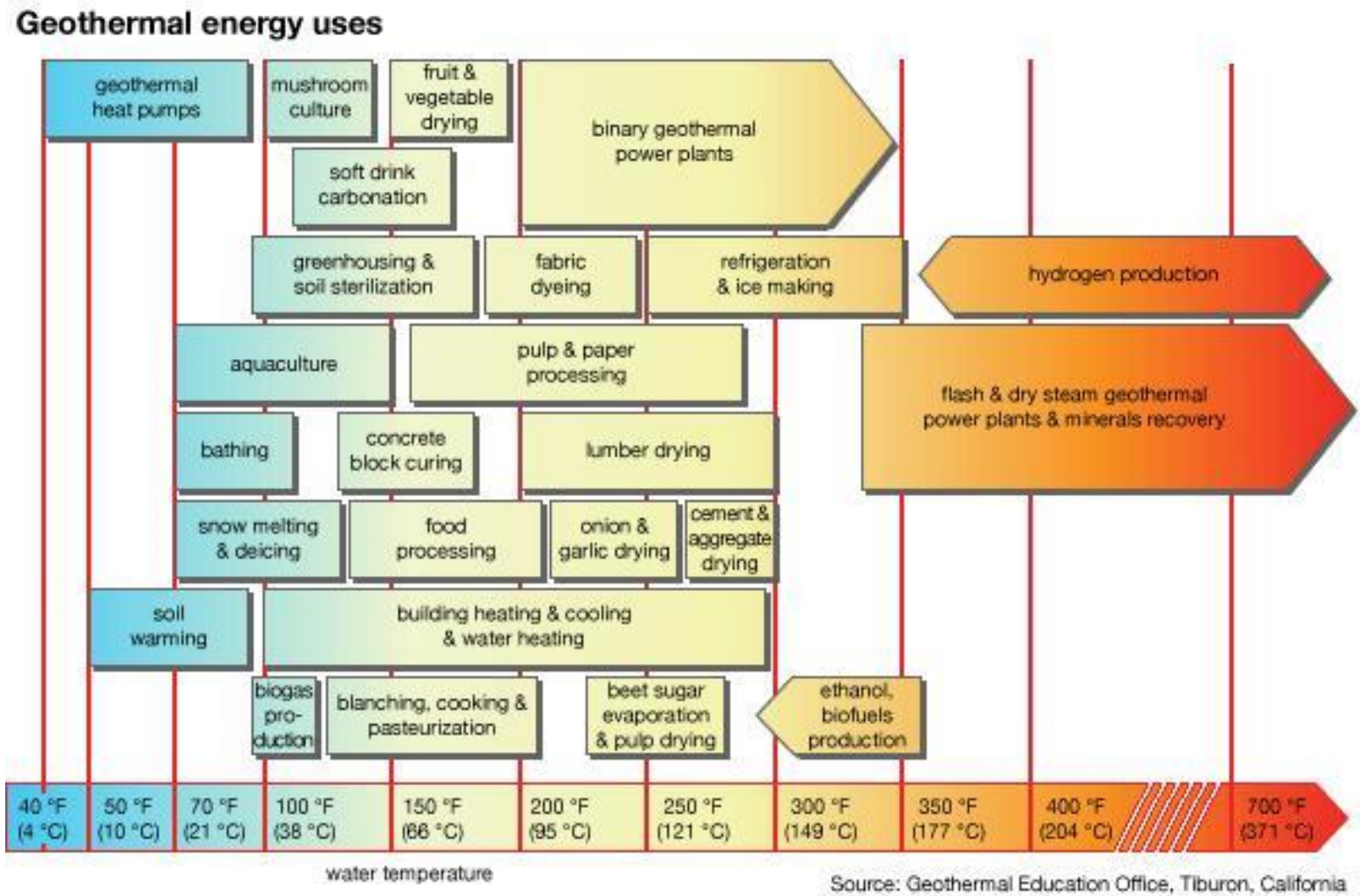


An example of Stakeholders and sustainability perspective of GTE power plant

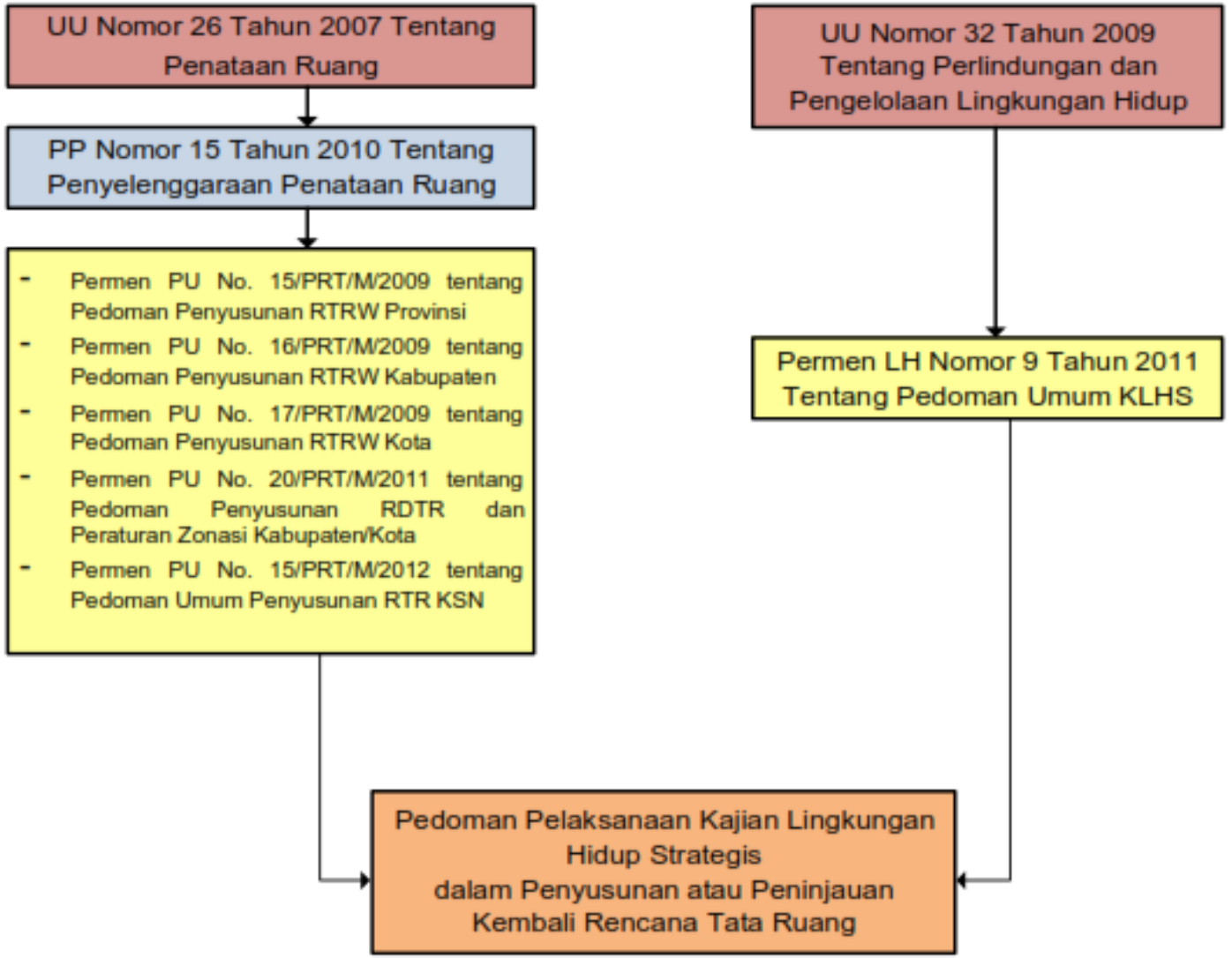




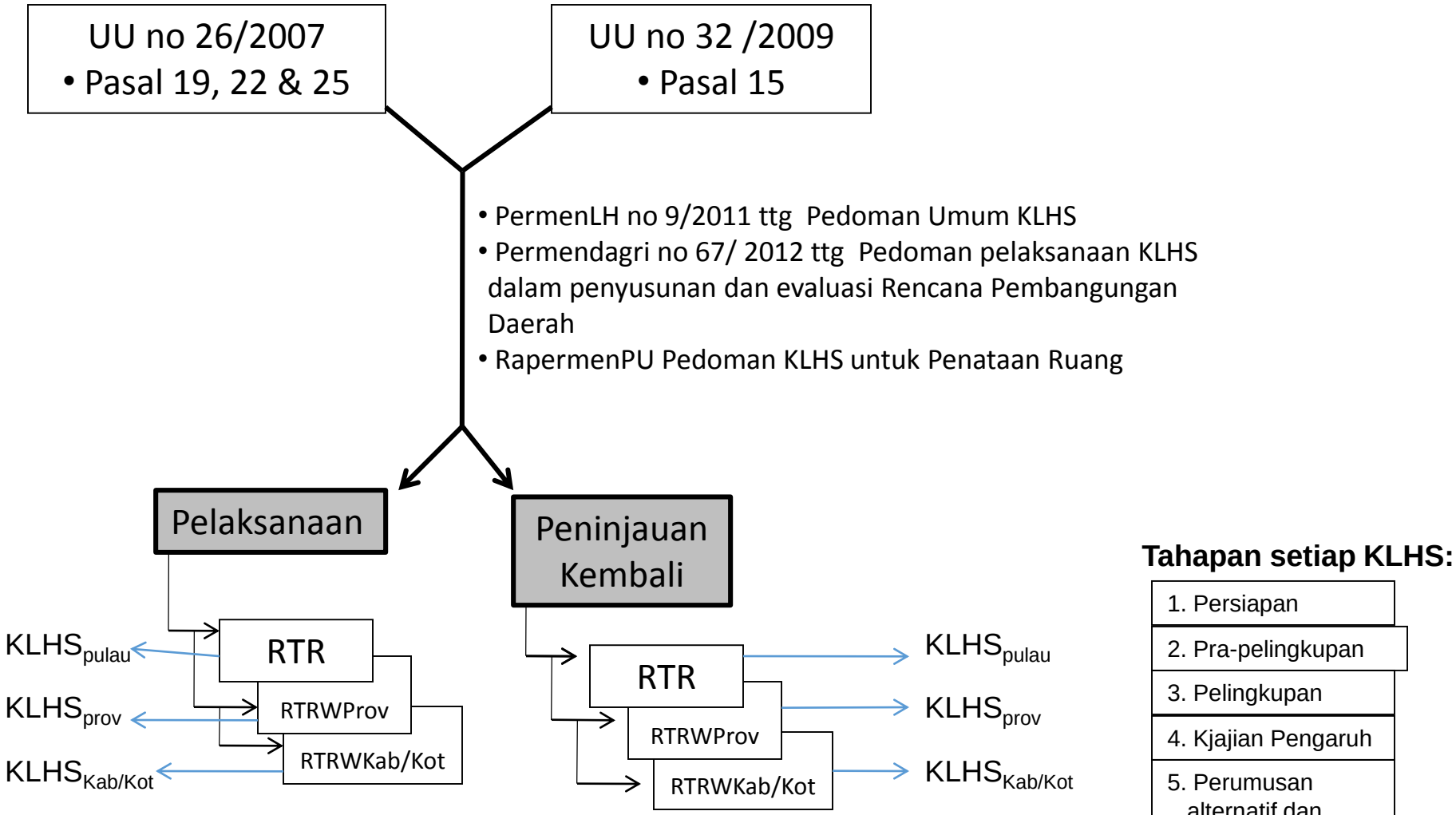
Environmental Impacts and Economics Cost



SEA within Spatial Plan Policies/Regulations (1)

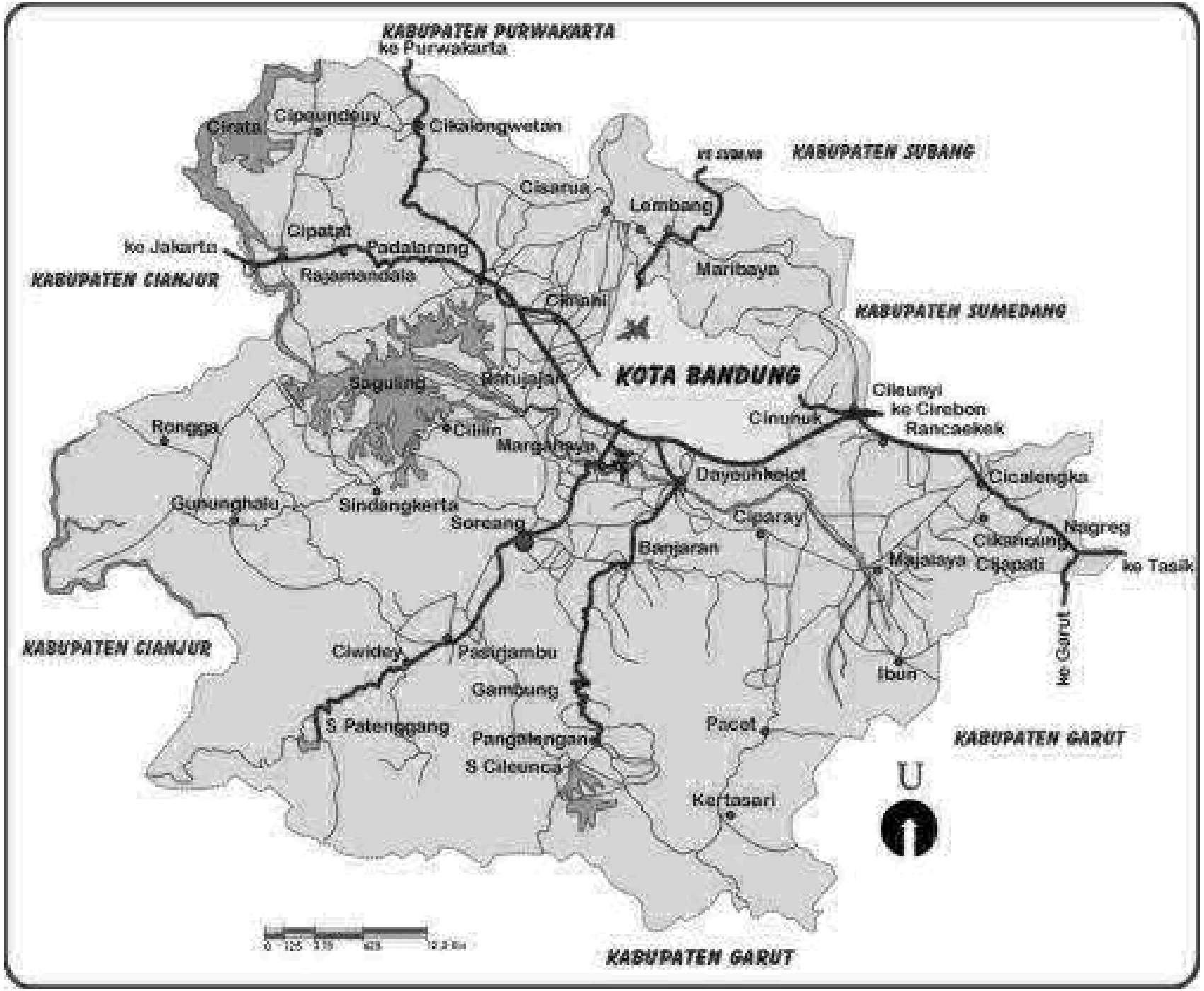


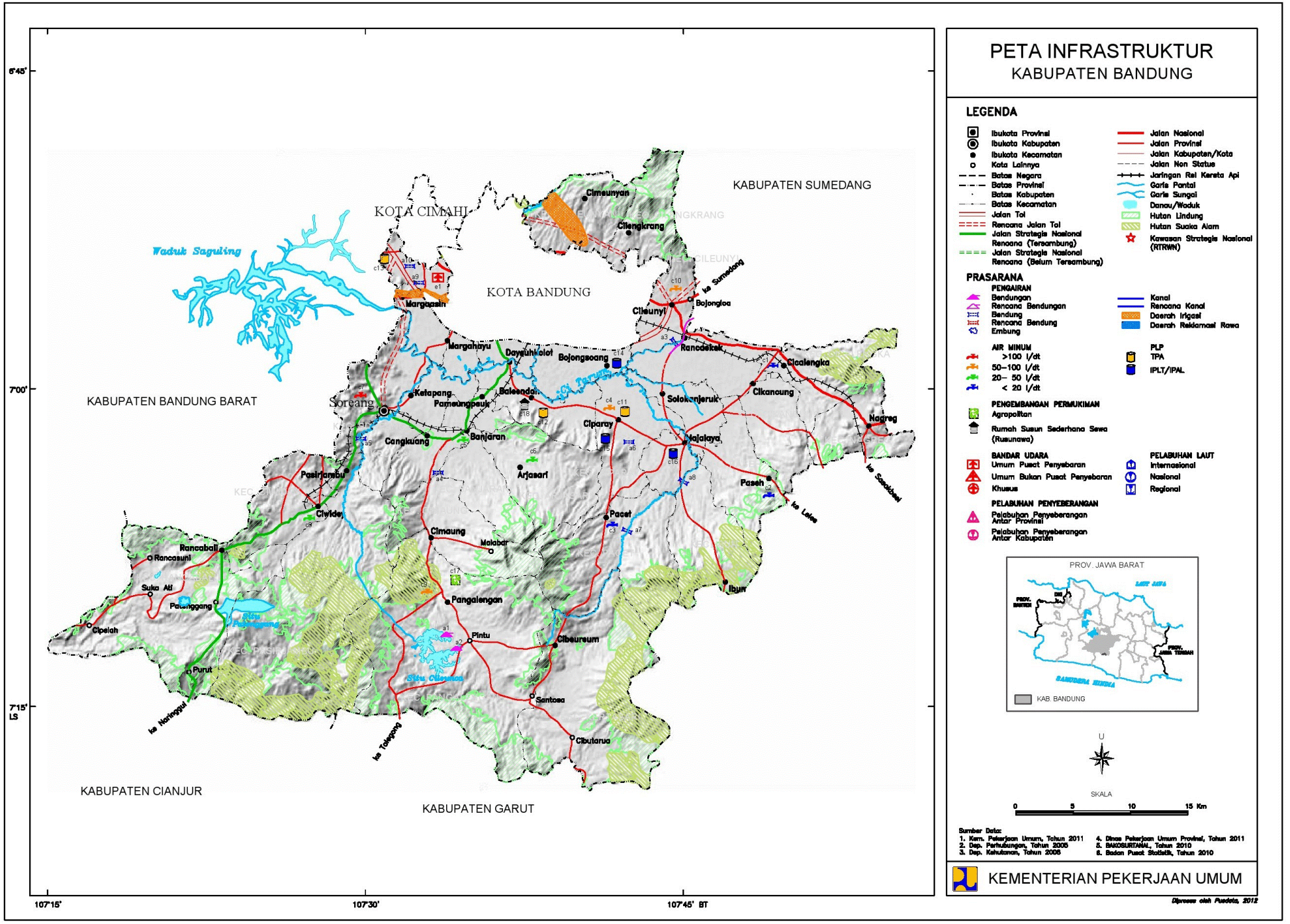
SEA within Spatial Plan Policies/Regulations (2)



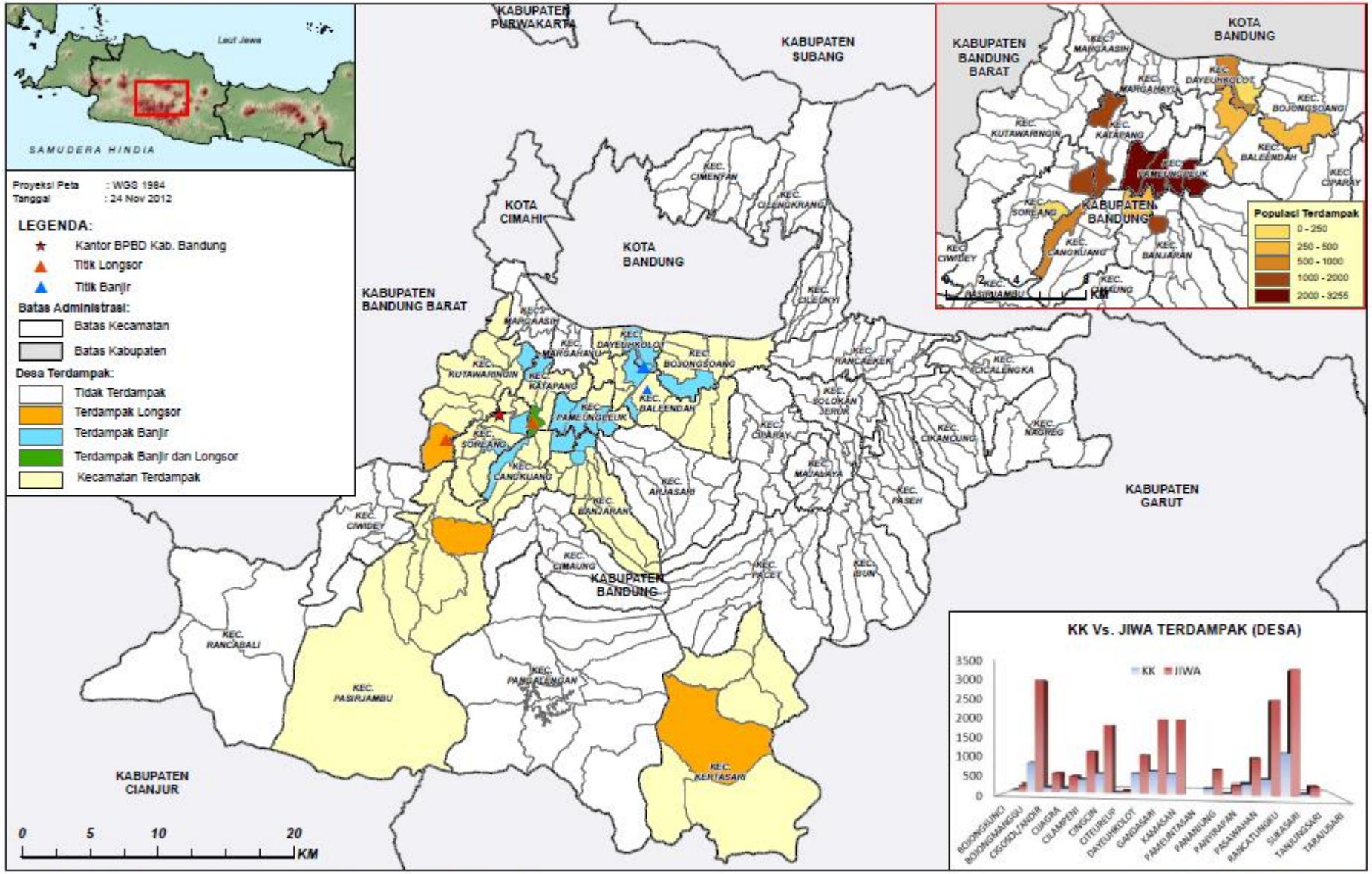
Tahapan setiap KLHS:

1. Persiapan
2. Pra-pelingkupan
3. Pelingkupan
4. Kjajian Pengaruh
5. Perumusan alternatif dan Rekomendasi


KABUPATEN PURWAKARTA
ke Purwakarta
Cirata
Cipeundeuy
Cikalongwetan
ke Subang
KABUPATEN SUBANG
Cisarua
Lembang
Cipatat
ke Jakarta
Padalarang
Maribaya
KABUPATEN CIANJUR
Rajamandala
Cimahi
KABUPATEN SUMEDANG
KOTA BANDUNG
Saguling
Batujajar
Cileunyi
ke Cirebon
Cimanuk
Rancaekek
Ronggo
Cililin
Margahayu
Dayeuhkolot
Cicalengka
Gununghalu
Sindangkerta
Soreang
Ciparay
Nagreg
Banjaran
Cikancung
Majalaya
Cilapati
ke Tasik
ke Garut
KABUPATEN CIANJUR
Ciwidey
Pasirjambu
Ibun
Gambung
S Patenggang
Pangalengan
Pacet
KABUPATEN GARUT
S Cileunca
U
Kertasari
KABUPATEN GARUT


PETA INFRASTRUKTUR
KABUPATEN BANDUNG
LEGENDA
Ibukota Provinsi
Ibukota Kabupaten
Ibukota Kecamatan
Kota Lainnya
Batas Negara
Batas Provinsi
Batas Kabupaten
Batas Kecamatan
Jalan Tol
Rencana Jalan Tol
Jalan Strategis Nasional
Rencana (Tersambung)
Jalan Strategis Nasional
Rencana (Belum Tersambung)
Jalan Nasional
Jalan Provinsi
Jalan Kabupaten/Kota
Jalan Non Status
Jaringan Rel Kereta Api
Garis Pantai
Garis Sungai
Danau/Waduk
Hutan Lindung
Hutan Suaka Alam
Kawasan Strategis Nasional (RTRWN)
PRASARANA
PENGAIRAN
Bendungan
Rencana Bendungan
Bendung
Rencana Bendung
Embung
Kanal
Rencana Kanal
Daerah Irigasi
Daerah Reklamasi Rawa
AIR MINUM
>100 l/dt
50–100 l/dt
20– 50 l/dt
< 20 l/dt
PLP
TPA
IPLT/IPAL
PENGEMBANGAN PERMUKIMAN
Agropolitan
Rumah Susun Sederhana Sewa (Rusunawa)
BANDAR UDARA
Umum Pusat Penyebaran
Umum Bukan Pusat Penyebaran
Khusus
PELABUHAN LAUT
Internasional
Nasional
Regional
PELABUHAN PENYEBERANGAN
Pelabuhan Penyeberangan Antar Provinsi
Pelabuhan Penyeberangan Antar Kabupaten
PROV. JAWA BARAT
KAB. BANDUNG
U
SKALA
0 5 10 15 Km
Sumber Data:
1. Kem. Pekerjaan Umum, Tahun 2011
2. Dep. Perhubungan, Tahun 2005
3. Dep. Kehutanan, Tahun 2006
4. Dinas Pekerjaan Umum Provinsi, Tahun 2011
5. BAKOSURTANAL, Tahun 2010
6. Badan Pusat Statistik, Tahun 2010
KEMENTERIAN PEKERJAAN UMUM
Dipresentasikan oleh Puskata, 2012
KOTA CIMAHI
KOTA BANDUNG
KABUPATEN SUMEDANG
KABUPATEN BANDUNG BARAT
KABUPATEN CIANJUR
KABUPATEN GARUT
Waduk Saguling
Situ Patenggang
Situ Cileunca
Soreang
Cimeunyan
Cilengkrang
Margaasih
Margahayu
Dayeuhkolot
Bojongsoang
Cileunyi
Rancaekek
Cicalengka
Cikancung
Nagreg
Ketapang
Pameungpeuk
Baleendah
Solokanjeruk
Ciparay
Majalaya
Cangkuang
Banjaran
Arjasari
Pasirjambu
Ciwidei
Paseh
Pacet
Cimaung
Malabar
Ibun
Rancabali
Rancasuni
Sukaati
Patenggang
Cipelah
Purut
Pangalengan
Pintu
Cibeureum
Santosa
Cibutaruo
ke Sumedang
ke Lebak
ke Sindangkasih
ke Haringgu
ke Tolegong

PETA WILAYAH TERDAMPAK BENCANA ALAM BANJIR DAN TANAH LONGSOR
KABUPATEN BANDUNG



Disclaimer: *The designations employed and presentation materials on this map does not imply the expression of any opinion of International Organization for Migration (IOM) concerning the legal status of any country, territory, or administrative boundaries.*

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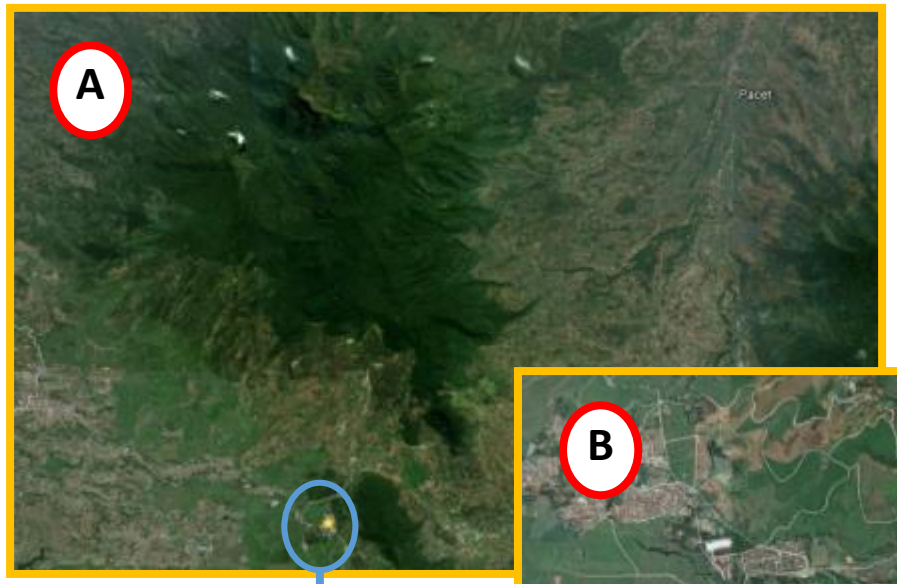
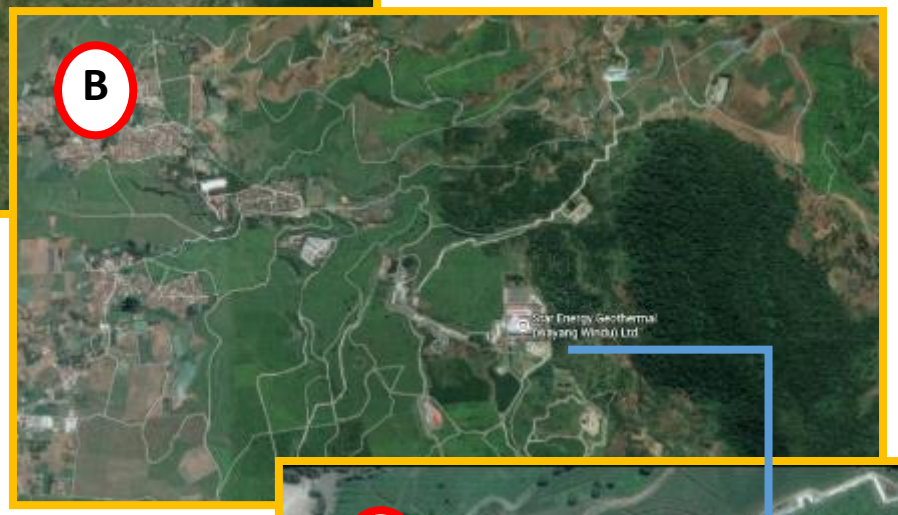
http://www.iom.or.id

Lokasi GTE Wayang Windu Power Plant

Source: www.starenergy.co.id



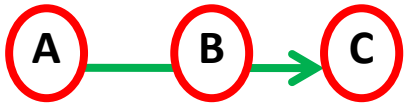
Pengamatan skala kecil (luas)



Pengamatan skala sedang

Pengamatan skala besar (detail)

Tingkat observasi lokasi GTE Wayang Windu::



Semakin detail

Strategical Issues Identification

	Sosial	Ekonomi	Lingkungan Hidup/SDA
Isu 1			
Isu 2			
Isu 3			
Isu 4			
Isu 5			

Berikan bobot nilai permasalahan strategis dalam GTE Power plant konteks lokasi Wayang Windu

	Sosial	Ekonomi	LH/SDA	Total
Bovot				100%

	Sosial	Ekonomi	Lingkungan Hidup/SDA
Isu 1			
Isu 2			
Isu 3			

Berikan bobot nilai pada masing-masing isu strategis dalam GTE Power plant konteks lokasi Wayang Windu

	Sos	Eko	LH/SDA	Total
Isu 1				
Isu 2				
Isu 3				
Total				100%

Strategical issues covering:

1.	Across sector lines
2.	Across planning regions
3.	May creates negative impacts in the long run if there is no mitigation or adaptation or alternative program. ▪ It can disturb development process in certain region ▪ It can disturb sustainable development achievement
4.	Accumulative impacts and potentially develop multiple effects

An example of assessing sustainable development; in relation to social, economic and environmental issues:

SA/SEA reports suggest that Core Strategies have social & economic benefits, but neutral or slightly negative environmental effects

Social	Environmental	Economic
Accessibility 1.27	Air -0.21	Econ. growth 1.18
Crime 0.59	Biodiversity 0.26	Employment 1.17
Equity 1.16	Climate ch. 0.09	Skills 0.68
Health 1.04	Landsc./hist. 0.67	
Housing 1.23	Resources 0.20	**Other**
	Water -0.04	Flooding -0.30
	Waste -0.34	Land use 1.04

Conclusions of 45 SA/SEA reports about impacts of their plans

Sumber: Pelatihan KLHS oleh GTZ, 2011

Wayang Windu GTE Location and its Zoning System

What makes Wayang Windu GTE Power Plant Sensitive to Sustainable Development?	What mitigation program needed?	Is there any possible alternative (s)?	What recommendation should be addressed to the Spatial Plan?
1. ……..			
2. ……..			

An Example

Impact Assessment – Using Sustainable Development Principles

No	RPJMD HSU	Prinsip Pembangunan Berkelanjutan*)									Catatan Perbaikan
		Keterkaitan				Keseimbangan			Keadilan		
		Awi	Awa	Ase	APK	Ek	Sos	LH	Pokmas	Gen	
1	Visi										
2	Misi										
3	Tujuan & Sasaran										
4	Strategi dan Arah Kebijakan										
5	Kebijakan Umum & Program										
6	Indikasi Rencana Prog Prioritas										

Keterangan:

Awi	**: Antar Wilayah**	**Ek**	**: Ekonomi**
Awa	**: Antar Waktu**	**Sos**	**: Sosial**
Ase	**: Antar Sektor**	**LH**	**: Lingkungan Hidup**
APK	**: Antar Pemangku Kepentingan**	**Pokmas**	**: Antar Kelompok Masyarakat**
		Gen	**: Antar Generasi**

Catatan:

*) Isian masing-masing sel:

+: Ya -: Kurang X: Tidak ada

An Example

Key Issues and PPP Priority Indications for Local Mid-Term Development Plan

	Isu Kunci*)						Catatan**)
	1	2	3	4	5	6	
Indikasi Renc. Prog. Priotas …….							
Indikasi Renc. Prog. Priotas …….							
Indikasi Renc. Prog. Priotas …….							
Indikasi Renc. Prog. Priotas …….							

Catatan:

*) isian sel untuk keterkaitan Isu Kunci dan masing-masing IRPP:

++: Ada sinergi nyata antara IRPP –RPJMD dengan isu kunci (IRPP yang bersangkutan mempertimbangkan atau memprogramkan kegiatan terkait isu-isu kunci)

+: Ada potensi sinergi antara prioritas IRPP dengan isu-isu kunci (tujuan pelaksanaan IRPP-PJMPD dapat memberikan kontribusi berdasarkan isu-isu kunci)

–: Ada potensi konflik jika dilaksanakan; menggangu pencapaian pembangunan

– –: Sangat mungkin terjadinya konflik dan mengganggu tujuan strategis

?: Tidak ada ketegasan / kepastian keterkaitan

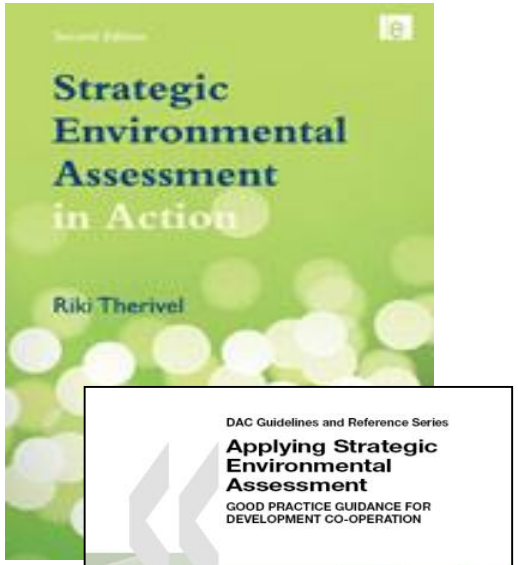
0: Tidak ada kaitan/hubungan

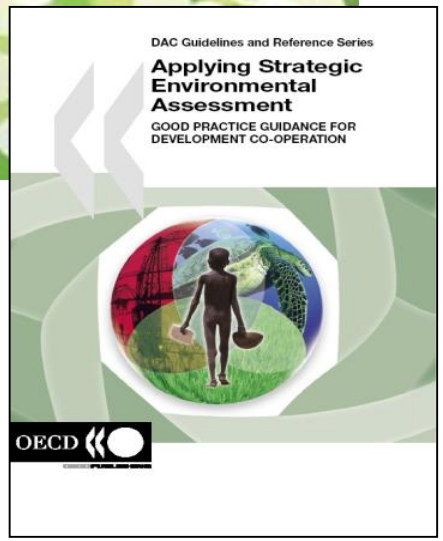
**) catatan perbaikan untuk IRPP dan rekomendasi bagi Renstra SKPD yang bersangkutan

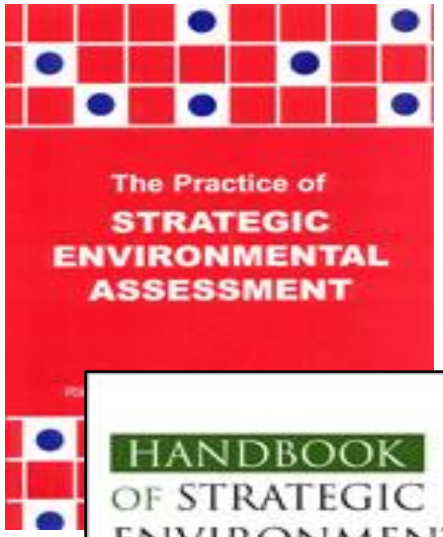
Daftar isu kunci:

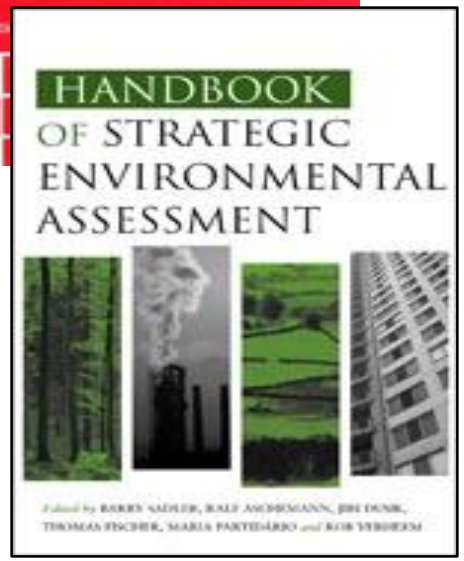
1. Resiko banjir tinggi
2. Perubahan ekosistem DAS
3. Pemanfaatan luas lahan pertanian belum terencana
4. Pertimbangan aspek lingkungan belum sepenuhunya menjadi dasar perumusan kebijakan
5. Penetapan Kota Amuntai sebagai PKW
6. RTRWK belum sepenuhnya diimplementasikan

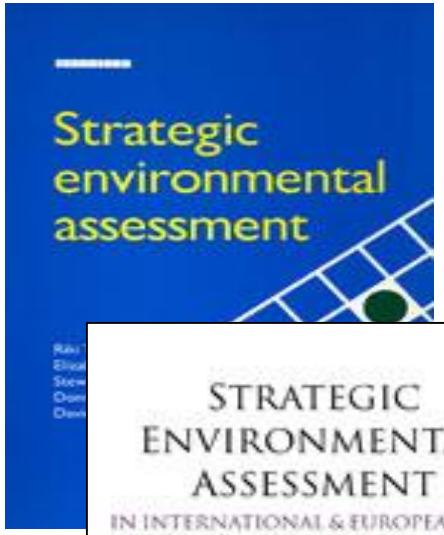
Several Recommended Readings

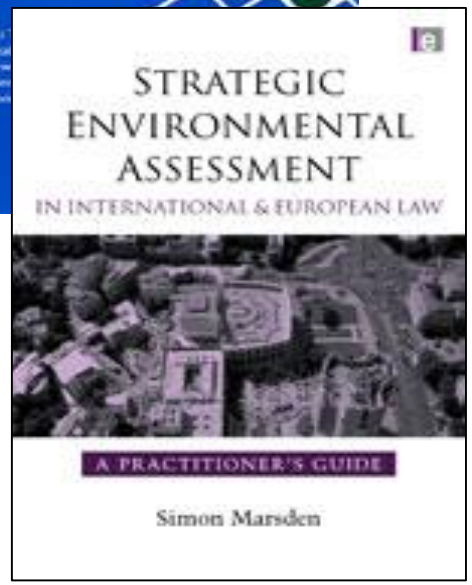












Pengembangan Rumusan Indikator Pembangunan Berkelanjutan di Indonesia (Deputi Sumber Daya Alam dan Lingkungan Hidup, Bappenas, 2011)

- Menggunakan pendekatan perhitungan Genuine Saving (GS)
- *Genuine Saving* merupakan salah satu turunan dari pendekatan modal yang menghitung selisih antara Produk Domestik Bruto (PDB) dengan konsumsi rumah tangga, konsumsi pemerintah, depresiasi modal, deplesi sumberdaya alam, dan degradasi lingkungan, kemudian ditambah dengan investasi / modal manusia berupa belanja publik untuk pendidikan dan kesehatan.

Secara matematik dapat dilihat pada persamaan berikut ini :

$$GS = GDP - CH - CG - DK - DN - ED + CEDU + CHLT$$

GDP	: *Gross Domestic Product*	DN	: *Depletion of Natural Resources*
CH	: *Household Consumption*	ED	: *Environmental Degradation*
CG	: *Government Consumption*	CEDU	: *Spending on Education*
DK	: *Depreciation of Man-Made Capital*	CHLT	: *Spending on Health*

Catatan: silahkan dikritisi model ini